# 2.0 TECHNICAL REQUIREMENTS

## 2.1 PROGRAMMING

### 2.1.1 DPW's RESPONSIBILITY TO AGENCIES

The Commissioner of Public Works is given broad responsibility to establish and continually review the space standards that are used throughout the State for purposes of establishing budgets and design parameters for State Agencies. In order to accomplish this task, the DPW continually reviews the needs and requirements of the users and is able to assure the legislature that the standards are in the best financial interests of the State in terms of need and quality. It is prudent to revisit these standards on a regular basis since change of mission and equipment is continuing.

This chapter is an attempt to recognize that there are spaces that cannot be easily defined due to singular purpose, special requirements or the fact that existing space is being utilized and the structural system might not lend itself to the dimensions suggested herein. Regardless, the intent of this document is to establish a planning guide to allow budgeting to progress and be based on rational and educated assumptions.

A major purpose of this chapter is to present a series of planning approaches and methods for use by State Agencies in forecasting and calculating space needs required to fulfill their missions. These space planning techniques are based on definitions and objective space assignment criteria and standards drawn from experience in the private and public sectors, that serve as the principal reference for determining the amount of assignable floor area needed for personnel, equipment and support functions.

The DPW goal is to find a solution that provides the best quality space with efficient and well-defined relationships between workers and their supervisors. Additionally, we are seeking to find the best methodology to minimize or reduce space assigned to allow Agencies to optimize their business operations yet provide the high level of service expected. This will assist each Agency to find methods to reduce costs and still maintain morale and performance. One of the areas that we will strive to more clearly define are the work station needs for staff that require "hoteling" work space. These are staff who generally work in the field and need some space to write reports and file necessary field reports, these spaces maybe shared spaces or at least reduced in size.

The methods used in this chapter for forecasting Agency space requirements are herein described. Three levels of planning are presented which can be used to determine future space requirements ranging from a broad long-range estimate to a precise determination of floor area needed. Guidelines are provided to assist agencies in choosing the level of planning that is most appropriate to the status of the information they have at hand.

### 2.1.2 SPACE STANDARDS

It is an important goal in facilities planning, design and management to maximize the ratio of assignable space to non-assignable space. Contemporary design criteria used by architects and office space planners, for example, are aimed at achieving at least an 80 percent efficiency ratio: that is, 80 percent or more of a building's gross area can be assigned to active functions (such as office workstations, intra-unit circulation, conference rooms, cafeterias, mailrooms, duplicating and photocopy, etc.). The remaining 20 percent or less is non-assignable and represents circulation (central corridors, stairs, elevators), custodial (janitor's closets, storage of cleaning supplies and equipment), mechanical (restrooms, boiler rooms, utility shafts, telephone and

electrical closets, etc.) and structural (exterior walls, interior partitions, unusable areas in basements and attics).

Other building types which generally serve large public gatherings might have large lobbies, wide corridors and extensive mechanical systems, tend to be at the lower end of the efficiency scale, typically 60-70 parent efficient. Exceptions to the 80% efficiency ratio will be analyzed and determined at the time space standard revisions are established.

### 2.1.2.1 COMPONENTS OF ASSIGNABLE SPACE

Assignable area encompasses all floor space "available for assignment to an occupant, (and) which can be put to useful purposes in accomplishing the Agency's mission." It is important to focus on assignable area as the point of departure for determining an Agency's overall facilities requirements, because such space is the fundamental "building block" of gross floor area calculations. Below are further definitions of the components comprising assignable floor area in State facilities.

Workstations - space for personnel, with desk, chair and other assigned furniture and equipment necessary to perform tasks, whether in a private office with floor- to-ceiling walls or an open office area either with or without modular system partitions.

Support Equipment - other furniture or special equipment (in addition to desks, chairs, and accessories directly assigned to workstations) needed to carry out general office functions. This category includes such items as photocopy machines, central file cabinets, computer terminals and possibly shared-use printers, and work tables.

Support Areas - functional areas and spaces not normally used to accommodate the workstations of office personnel, but necessary for the proper conduct of Agency activities. This category includes conference rooms, reception areas, interview and testing rooms laboratories and other similar functions.

General Services - mail and central supply rooms, printing and high-volume reproduction centers and records management functions are some of the functions included in this category.

Employee Services - lounges, employee health clinics, coffee shops, canteen vending areas, candy counters, new stands and concessions providing conveniences, services and personal items are included in this category.

Building Services - facilities management (e.g., building superintendent's office), shipping and receiving, and bulk supplies and equipment storage are among the functions included under building services.

Large private office space users, such as insurance companies, banks, and corporate headquarters facilities requirements ranging from 10 percent to 15 percent of aggregate assignable space for general services, employee services and building services.

Intra-Unit Circulation - this category refers to the assignable space between workstations for circulation within functional units, and includes secondary aisles and corridors to tie the various office functions together. A factor of 8-10 percent is used in the standards incorporated in this manual as an add-on for space assigned to office personnel (generally in open areas but excluding private office suites served by public corridors), unassigned equipment and furniture, interview rooms. However, intra-unit circulation space allowances are not added on to employee services and building services functions.

Economies of scale come into play with respect to the assignable-to-gross area used to measure efficiency of space. Experience in facilities management has demonstrated that the smaller the overall facility, proportionally more floor area is given over to non-assignable space requirements. Therefore, smaller agencies require proportionally more assignable space per employee. This disproportion occurs because support areas and unassigned equipment required cannot be shared or need to be of substantial size to perform its function for Agency activities.

### 2.1.2.2 SPACE PLANNING METHODS AND STANDARDS

This section contains three different space planning models that can be used to determine the space needs of State Agencies. The model used to determine space depends on the level of detail involved and the purpose for which the space will be used.

1. **Level I** (Model for Calculating Agency Space Needs) is a general long-range forecasting model for determining gross floor space requirements.

2. **Level II** (Model for Calculating Space Needs) provides both assignable and gross space needs based on the numbers and categories of projected personnel, various support functions, and certain assumptions regarding building efficiency.

3. **Level III** (Model for Calculating Specific Space Requirements) provides a detailed assessment of assignable space requirements, using specific data on authorized and projected staffing, itemized equipment listing and support space.

Levels I and II are useful planning methods for projecting space needs as part of the five-year Facility and Capital Planning Process, while level III is applicable to definitive space requirements.

Level I uses broad space planning parameters and requires the input of only the total number of personnel employed by a State Agency in order to arrive at gross area requirement. This approach is useful for making preliminary estimates of aggregate space needs on a long-range basis. It will provide a rough basis for projected facility requirements when detailed information on staffing levels by specific category and support functions is not available.

Level II is formatted as a computerized space calculation model, and provides a more detailed approach to projecting space needs. While certain assumptions are built into the model regarding workspace for agency employees and floor area requirements for support functions and equipment, the format is flexible enough to adapt to unique requirements. This method is used where specific data on staffing category projections and other data are available.

Level III requires firm data on agency employees with specific position categories, as well as actual requirements for support space and unassigned equipment and furniture. This space planning method uses computerized worksheets, and has been programmed to automatically calculate requirements based on standards.

**LEVEL I** Model for Calculating Agency Space Needs

The first general approach to making an approximate determination of space needed by State Agencies is on the basis of aggregate average gross floor area per person. This method of space forecasting takes into account the space needed for agency office personnel and supporting functions, as well as the non-assignable requirements such as corridors, restrooms, stairwells, lobbies and mechanical systems. The standards shown in the following table assume a general mix of office and related space, but do not include allowances for full-service cafeterias

or large specialized areas such as public areas found in DMV Branch Offices or client waiting rooms in Human Services' District Offices:

| Total Employee Population | Gross Floor Area/ Employee | Facility Size Range (Gross Square Feet) |
|---|---|---|
| Under 75 Persons | 250 | Under 17,500 |
| Under 250 Persons | 225 | 17,500 - 60,000 |
| Over 250 Persons | 200 | Over 60,000 |

These standards are useful only in making an initial approximation of space needs. They do reflect empirical observations of real-life situations found in the public and private sectors, and are intended to serve as a "rule-of-thumb" in calculating facilities needs when detailed planning data are lacking. It is important to re-emphasize that the size and functional efficiency of a facility influence the use of Level I planning standards. As noted earlier, smaller buildings tend to be less efficient because of the disproportionate amount of space necessary for lobbies, stairwells, corridors, restrooms, mechanical equipment and other non-assignable floor areas.

Some additional information that might be helpful at this level of detail are:

Office Buildings for State activities should operate near the 80% efficiency level. Whereas, Courthouses and other buildings with heavy public use may at best realize 60% efficiency.

Room types such as classrooms should have 20 sq. ft per student. Hearing rooms and lecture halls should be programmed for 25 sq. ft. per person. Public waiting rooms are typically programmed for 15 sq. ft. per person.

**LEVEL II** Model for Calculating Space Needs

Determining space needs using the Level II model requires data relative to the numbers and types of personnel and other elements of space use. This forecasting method provides more detail than Level I and is based on the numbers of executive, managerial, professional and clerical staff. It incorporates allowances for conference rooms, general services [Mail, supply storage, records management, etc.], building services [security, shipping and receiving, building maintenance, etc.], and employee services [lounges, coffee shops, new stands, etc.] This planning model also takes into account an agency's requirements to support technology and cafeteria facilities. Assignable space needs are then extrapolated to determine the gross space requirements based on building efficiency, (the ratio of assignable to non-assignable space.) For example, if an agency's assignable space requirement was 800 square feet and the building's efficiency factor is 80 percent, the gross area required would be 1,000 square feet.

Additionally, we recognize even at this level that there exists functions that cannot be calculated as office usage. When we have to address other building types we then can easily utilize the computer generated models that are attached.

Some examples of building types that tend to fall into these categories are:

EDUCATION - Most schools have classroom needs, these are general in nature and differ slightly from RVTS to the collegiate level. This level of analysis does address circulation, basic support for faculty offices at the collegiate level. When special needs arise due to the mission of the school, each specific classroom type will be defined by the Agency.

RESEARCH - Those spaces that are dedicated to long term research that would be found in either collegiate graduate level research or medical research must be defined by the programs

generating the need. Other research needs such as teaching laboratories or general research where generic lab space is required can be defined for budget purposes.

TECHNICAL - This particular classification refers generally to staff that are not defined within the Office Standards. Usually they require extensive review of technical documents such as building plans, scientific documents, or Reports. Quite often they also have the need to utilize new computer applications which again require extensive work space to support these job functions. Most often these spaces can be found in DOT, DPW, DEP and DPS where plan review or development is undertaken.

**LEVEL III** Model for Calculating Specific Space Requirements

This is the most detailed of the space planning models. Space has been determined for various levels of executive, managerial, professional and clerical positions for both systems furniture and standard furniture layouts. Both examples are attached in the Appendix.

The amount of space assigned to each employee by position is based on the determination of area is necessary to permit efficient performance of tasks. Job titles, pay classifications, seniority or rank are not as relevant to space assignment determinations as are the activities actually conducted and the duties performed by personnel occupying office space.

The space allocations should also be sized to accommodate furniture and equipment needed by an office worker to perform assigned tasks. One of several planning techniques for calculating the floor space needed for a given office function is to measure the footprint or floor area occupied by assigned furniture and equipment and multiply the aggregate by a factor of three. This technique provides for movement and passage space around furniture as well as adequate "elbow room" inside a private office.

The Level III model uses three worksheets when calculated by DPW. The first of these worksheets addresses space requirements for office workstations; the second, unassigned equipment and furniture used by the unit as a whole; the third relates to needed support space. When the time arrives to undertake this operation, the Project Manager will provide you direction and information on how and where this was generated.

### 2.1.2.3 CONCLUSION

This chapter has presented a series of planning guidelines to assist agencies in determining space needs, and a set of standards and criteria to serve as a uniform basis for calculating those needs. The standards are a common reference point for use by all State Agencies and will eliminate the confusion and contradictions implicit in the use of different (and often conflicting) sources for space calculations. Although the space planning methods described in this manual are adaptable to unique situations, it will be incumbent on State Agencies to show justification for exceptions to the space standards as described in this guidance document.

The space planning methods discussed in this manual have sufficient flexibility to adapt to a variety of applications. For example, the needs of one agency may dictate the use of modular panels and systems furniture as part of an "office landscape plan" layout. Another agency of comparable size will require a more conventional layout of private offices and open unpartitioned areas for general staff. The same space standards and criteria apply to both situations, and although the physical layout will result in distinctly different office environments, parity will occur in assigning space based on functional requirements.

The DPW Process Management Staff stands ready to assist and work with State Agencies in using these space planning methods and standards. The following services are available:

1. Public Works staff can provide Agencies with Level II calculations of space needs forecasts using data input on personnel projections from the Agencies. Please call the Department's Chief Architect at (860) 713-5631 for assistance in obtaining a Level II space needs forecast.

2. Training and technical assistance will be provided to State Agency personnel in preparing Level III projections of specific space requirements.

3. It is possible for State Agencies to gain direct access to the Level II and III planning worksheets and formats. In order to do so please contact your Project manager for the details.